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FREDERICK WILLIAM BATCHELDER.

MARIA L. OWEN.

A gentle, unassuming, lovable life came to its earthly close when Frederick W. Batchelder left us. The task of writing a fitting notice of him for a botanical journal is a hard one; for those who knew him, the man is so much more than the botanist, that with a heavy heart and with eyes that scarcely see through tears, the tribute which he well deserves in this magazine is attempted.

Frederick W. Batchelder was born in Pelham, N. H., in 1838, son of Dr. Amos Batchelder and Rebecca (Atwood) Batchelder, a descendant on his father's side from the Rev. Stephen Bachiler who came over from England in 1632. In the nearly three centuries which have elapsed since that time, the spelling of the name has undergone many changes, for every branch of the old divine's posterity seems to have had its own way. The common ancestor of all was excommunicated in his own country for his independent religious opinions, and in this country too, the sturdy and brave old parson was so persecuted for his departure from the ecclesiastical ruts to which he was constitutionally averse, even his moral character being assailed, that after some twenty years here, he shook off the dust of New England from his feet, and returned to Old Boston, England, where he died at the age of 100, a man of great vigor physically and intellectually. His character is thoroughly vindicated in our times from the injurious charges which prevailed against it for two centuries.

On his mother's side Mr. Batchelder came down from Hugh Tallant of whom Whittier wrote in "The Sycamores." The poet gives many verses to him as a story-teller and musician, but Hugh was much more than a "rustic Irish gleeman." He was a man of great force of char-

acter. Coming a poor immigrant, he soon acquired property in New Hampshire, where he lived as a good citizen, adding to the happiness of all who knew him "with his eyes brimful of laughter, and his mouth as full of song." He came from Ireland, but he was a member of the church of England, and probably from one of the "transplanted" English families of Cromwell's time. Our friend just lost had his musical gifts in fullest measure, and his gaiety of temperament; would that he might have inherited the vitality of these two ancestors, for Hugh lived through a vigorous old age to be 108.

The young Batchelder was fitted for Harvard in the Boston Latin School, and was graduated from college in the "fighting class" of 1860 — the class of whose 146 members 79 went to the war and 19 gave their lives. Mr. Batchelder entered the service as surgeon steward in the navy, on the bark Kingfisher of the South Atlantic blockading squadron, and after thirteen months of service was honorably discharged on account of disability.

From that time he made Manchester, New Hampshire, his home except for a few years spent in Springfield, Massachusetts. He married, in Manchester, Miss Annie Varney, daughter of the Hon. David Varney of that city.

The lifework of the young man was already outlined at his graduation. He had studied medicine under Dr. Oliver Wendell Holmes, and had been a pupil of Agassiz. He became an excellent botanist in after years and also an ornithologist of good standing. His catalogue of the plants of southern New Hampshire and his editing of Allen's "Birds of New Hampshire" and Wright's "Birds of the Jefferson region" show what thorough work he could do in both these branches of science. Thoroughness, indeed, was a characteristic of all that he did.

Mr. Batchelder was gifted in many ways, but he was, first of all, a musician. As a composer, particularly for the organ, he had high rank; the fine quality and originality of his work were recognized as admirable by the best judges; but his musical and scientific work were both hampered by ill health. For the last fifteen years of his life he worked constantly with more or less suffering, but always persistently, cheerfully and with indomitable courage. Neither ill health nor ill fortune could ever shake his beautiful optimism, as prominent and winning a trait as any part of his character. He was an organist for fifty-two years without interruption, from his college

days at Harvard, when he played in Appleton Chapel, to his last service in Manchester only two weeks before his death.

Music and bird lore were combined in his very careful and accurate transcription of bird songs and calls which he used from time to time, illustrating them on the piano, in the ornithological section of the Manchester Institute of Arts and Sciences. They were very highly thought of by those who heard them, though not satisfactory to Mr. Batchelder, because the bird song needs the sliding scale, which the piano does not have. He had studied carefully the birds of the Connecticut Valley, and later of the Merrimac Valley; indeed he observed them wherever he was, but here again his work was limited by ill health, particularly in the case of the game, water and shore birds. He was a constant contributor to the magazine, *Nature Study*, published by the Institute, where his articles, excellent for their matter upon birds and plants, had an added value from the beauty of their style. Whatever came from his pen was charming,— clear, direct and simple, and with the delicious humor coming out suddenly in the most unexpected places.

He loved to be with young people, and they, whatever their connection with him might be, were devoted to him — his choir, the young botanists and ornithologists to whom he was always a helpful friend, those engaged in various other branches of Institute work and those who only knew him socially; they all enjoyed his society, and never realized any disparity of years, so youthful was his spirit.

His knowledge was freely at the service of all who wanted it, and those far advanced in science often had something to learn of him, but for all this he sought no recognition. He was continually studying and learning from pure love of nature, and the glad helpfulness of his disposition made him always ready to impart from his gains; whether he was making a name in the world was far from his thoughts.

A loyal son of Harvard, he was the beloved president of the Harvard Club of Manchester, and the dean of the Alumni of the same city. His last musical composition was "A Hymn to Harvard" with Latin words which he wrote for the July meeting of the New Hampshire Harvard Club at Walpole. He did not feel equal to attending, but they had asked him for a poem, and he sent this as his contribution.

An attack of grip some ten years ago left him with chronic bronchitis and asthma which, in their turn, induced a peculiar weakness of the heart. These troubles incapacitated him for active work in his pro-

fession, but he could not give up his music entirely; he played the organ in church, and directed his choir to the last. But work which did not confine him to fixed hours was still in his power, and such occupation he took up with unfailing courage. His indomitable spirit was never impaired by his semi-invalidism, and work of lasting value for the Manchester Institute mentioned elsewhere in this paper, was begun and carried on through the rest of his life, and this courage and persistence in work were lighted up with a gaiety and delightful humor which pervaded and sweetened everything which he said or wrote.

The summer of 1911 with its long heated term was very trying to Mr. Batchelder and he weakened under it; he went with his wife and her sister to the Isles of Shoals, a favorite resort of his; he enjoyed his stay there, but the sea level did not agree with him. They went next to another loved locality, Chocorua, amongst the Sandwich mountains, where he had spent eight happy summers. Here too he had great joy, although unable to walk beyond the house grounds. They came home the 15th of September, and for a week he seemed to have regained some strength; after that a slight shock from which he was too weak to rally, proved the beginning of the end. He lived two weeks longer gradually sinking, but with his mind clear to the last, and on the 11th of October he passed away as peacefully as he had lived.

Although Mr. Batchelder had been interested in botany during his college days, it was not until the death of his daughter in 1887 that, as a mental diversion, he took up serious botanical work. He then began the accumulation of a private herbarium to represent his region of the Merrimac Valley. Soon after the formation in 1898 of the Manchester Institute of Science he presented his herbarium to the Institute. In 1902 this collection, together with a large number of additions made to it by Mr. Batchelder, was destroyed by fire, but immediately thereafter he set to work upon a new herbarium. This, at the time of his death, comprised 3,500 sheets. In 1900, in the Proceedings of the Manchester Institute, he published his *Preliminary List of Plants growing without Cultivation in the Vicinity of Manchester, New Hampshire*, followed in 1901 and 1902 by *Additions to the Preliminary List of Plants*, and in 1909 by a complete revision of the *Preliminary List*; a work which will always be used by students of geographic distribution with the assurance that it was based upon accurate

knowledge of the local flora. Besides this *List*, which stands as Mr. Batchelder's most important technical publication in botany, frequent notes from his pen were published in *RHODORA*, and his name is familiar to New England botanists as the author of the combination *Glyceria borealis* (Nash) Batchelder.

MANHASSET, NEW YORK.

NOTES ON CONNECTICUT MOSESSES,— III.

G. E. NICHOLS.

IN his last paper on Connecticut mosses¹ the writer called attention to the northwestern part of the state, and especially to the town of Salisbury, as a favorable collecting ground. At that time eighteen species of hepaticas and mosses were known from no other locality. This number has since been raised to twenty-six. In the present series of notes eleven mosses are recorded from Connecticut for the first time. Of these, nine represent additions due to recent explorations, while the remaining two have previously been reported under other names.

FISSIDENS VIRIDULUS (Swartz) Wahl. Bolton and Danbury (G. E. N.); Hamden (J. A. Allen, 1880); East Haven (Kleeberger). For some time it has been evident to the writer that the Connecticut material which has been passing as *F. incurvus* Schwaegr. (including *F. minutulus* Sull.)² comprised a number of distinct forms. Recently all of the available Connecticut specimens, some sixteen packets in all, were submitted to Mr. H. N. Dixon of Northampton, England, for examination, and some of his observations will be of interest to American bryologists. The broad conclusion that he comes to is that there is at any rate none of the true *F. incurvus* in the lot. Moreover, none of the specimens seem to agree with the descriptions of *F. minutulus*. Mr. Dixon divides the Connecticut specimens into several groups, one of which, as already indicated, he assigns definitely to *F. viridulus*. A second group, comprising specimens collected by the writer in Salisbury and North Branford, he refers to *F. viridulus* var. *Lylei* Wils. (= *F. exiguum* Sull.). The remaining

¹ *RHODORA* 13: 40. 1911.

² See Evans and Nichols: *Bryophytes of Connecticut* 104. 1908.

groups he hesitates to name definitely at the present time, although he remarks that some of the specimens very likely represent forms of *F. viridulus* while others approach *F. obtusifolius*.

F. incurvus and *F. viridulus* are both common and well known British species. The probability that the latter is widely distributed in this country has not, however, been generally appreciated. By many of the European writers of the present day the two are considered conspecific, but both Braithwaite and Dixon consider them distinct. They are indeed uncomfortably close, but in a case like this it is necessary to emphasize small dissimilarities. The most striking difference between the two, and one that makes them appear distinct at a glance, is seen in the form and degree of inclination of the capsules. In its typical form *F. incurvus* possesses a strongly curved and cernuous or horizontal capsule, while in *F. viridulus* the capsule is usually symmetric and erect or only slightly inclined. In a recent letter Mr. Dixon remarks that he will not venture to say how far the curving of the capsule is a constant character; there are indications that it may not be; there are certainly intermediate forms. But so far as the character goes the writer, after examining a number of British specimens, agrees with Mr. Dixon that there is nothing among the Connecticut specimens like the typical *F. incurvus* of Europe. Incidentally, the habitats of the two mosses are suggestive. The European manuals describe *F. incurvus* as growing commonly on clay banks and roadsides or in fields. The American plant, on the other hand, is ordinarily associated with moist rocks and only rarely does it occur on earth; in the writer's experience it is to be looked for on boulders in streams or on rocks in shady ravines, but never in open fields. The variety *Lylei* is a very small plant whose leaves, except on the vaginant lamina, lack the narrow-celled border which is so characteristic in the typical form of the species.

GYMNOSTOMUM RUPESTRE Schleich. On limestone in moist shaded ravines, altitude about 800 feet, Salisbury (G. E. N., 1911). Determined by Mrs. E. G. Britton and Dr. A. LeR. Andrews. The Connecticut specimens are rather short, hardly 1 cm. in height, and presented somewhat the same general field aspect as a *Rhabdoweisia*. The nearest relative among our local mosses and the only thing with which there is really any danger of confusing it is *Hymenostylium curvirostre*. The generic distinction between these two seems to be derived from the fact that in *Gymnostomum* the lid falls off from the

capsule at maturity, whereas in *Hymenostylium* the lid remains attached to the capsule by the dried-up columella. The leaf characters of the species in question are also different. In *G. rupestre* the margin is plane or nearly so, and the cells in the apical region are small and poorly defined; in *H. curvirostre* one or both margins are recurved below, while the cells in the apical region are larger and distinct. The present species ranges more or less extensively through Canada and reaches southward, principally along the mountains, into the northern United States. It has previously been reported from at least two of the New England States, Vermont and Massachusetts, and is common to Europe, Asia, and Africa. The spores ripen in late summer.

TORTULA MUCRONIFOLIA Schwaegr. On shaded calcareous shale ledges along the Farmington River, altitude 100 feet, Windsor (collected and determined by Miss Lorenz, 1911). This is the only smooth-leaved *Tortula* that is likely to be found in New England. The species is monoicous so that capsules are usually present, the spores maturing in summer. It should be easy to recognize in the field by the smooth hair-points on the leaves and by the peculiar peristome, which conforms to the familiar *Barbula* type but has a basal membrane nearly half the height of the entire structure. *T. mucronifolia* has been recorded from Vermont and Massachusetts; it is widely scattered through Canada and the northern United States, extending southward in the West to Colorado, Nevada, and California, and is common to both Europe and Asia.

TORTULA RURALIS (L.) Ehrh. On dry sandy soil over limestone, altitude about 750 feet, Salisbury and Canaan (G. E. N., 1911). During dry weather there is at least a superficial resemblance between this plant and the short, sterile form of *Polytrichum piliferum* which is common in similar habitats. This is due mainly to the long, hyaline arista which is such a conspicuous feature of the leaves in both mosses. In *T. ruralis* and in the closely related *T. montana* this arista is thickly beset with spiny teeth; in the other Connecticut species — *T. muralis*, *T. papillosa*, *T. mucronifolia* — it is smooth. *T. ruralis* and *T. montana* can be distinguished from one another by the following leaf characters: *T. ruralis* — leaves squarrose when moist, margin strongly recurved almost to the apex, upper cells 12–16 μ in diameter; *T. montana* — leaves erect-spreading when moist, margin recurved below but plane in the apical region, upper cells 9–10 μ in diameter. *T.*

ruralis is one of the most cosmopolitan mosses, being known from all of the great continental areas. In temperate North America it is widely distributed, but it is apparently much commoner in the West than in the East. The only other New England stations for it that the writer has found record of are in Vermont and Massachusetts. Fruit, when developed, matures in summer, but the plants are commonly sterile.

RACOMITRIUM SUDETICUM (Funck) Br. & Sch. Mr. R. S. Williams has referred to this species the specimens recently described by the writer¹ as *R. fasciculare*. In general aspect the two species are often similar. But in *R. sudeticum* some at least of the leaves possess short, denticulate, hyaline hair-points, while the upper leaf-cells are roundish-quadratae in shape. The leaves of *R. fasciculare* are always obtuse, never developing hyaline points, and throughout the leaf the cells are from three to five times as long as broad. *R. sudeticum* is quite common in the Salisbury hills and is known from all of the New England States except Rhode Island. Its general distribution is similar to that already given for *R. fasciculare*.

ANOECTANGIUM LAPONICUM Hedw. On precipitous schistose rocks in a moist ravine, altitude 1600 feet, Salisbury (G. E. N., 1911). Fortunately this moss usually fruits abundantly and the capsules, strongly plicate when dry and empty and barely emergent above the perichaetial bracts, render it easy of recognition. The other Connecticut species, *A. Mougeotii*, is dioicous and rarely fruits. *A. lapponicum* is autoicous, the antheridial buds being situated in the axils of the upper leaves and readily demonstrable in most cases. It has been recorded from Maine, New Hampshire, and Vermont, but is evidently much less frequent in New England than the other species. It ranges throughout the northern part of this continent, with a southerly extension in the East as far as the mountains of Alabama, and is found also in Europe and Asia. The capsules mature in late summer.

LEUCODON SCIUROIDES (L.) Schwaegr. On the bark of a tree, altitude 150 feet, Ledyard (G. E. N., 1911). As Grout observes,² this species can usually be recognized in the field by the flagelliform branches which are frequently produced in such abundance as to cause the plant to appear deformed. The leaves differ from those of the

¹ RHODORA 13: 43. 1911.

² Mosses with Hand Lens and Microscope 389. 1910.

other two American species, *L. julaceus* and *L. brachypus*, in their more narrowly acuminate, longer-celled and nearly entire apices. On this continent *L. sciurooides* appears to be occasional through eastern Canada, while it has been reported from New York and Pennsylvania and from all of the New England States but Rhode Island. It is a common European moss and is also known from Asia and Africa.

ELODUM BLANDOWII (Web. & Mohr) Broth. In a calcareous swamp, altitude 750 feet, Salisbury (A. W. Evans, 1911). The larger size, more ascending habit, and regularly pinnate branching give to this handsome moss a quite different appearance in the field from the common and closely related *E. paludosum*, the only other American representative of the genus. When dry the plants bear a superficial resemblance to *Thuidium abietinum*, but the different habitats of the two, together with the softer texture of the present species, preclude any possibility of confusion. Fruit is usually borne in more or less abundance, the spores maturing in May or June. According to Best¹ the American distribution is as follows: Greenland; Labrador; Canada and British Columbia; southward to Idaho; Colorado; New York; Vermont. It has now been reported from all of the New England States but Rhode Island. Native to Europe and Asia.

DREPANOCLADUS PSEUDOFUITANS (San.) Warnst. At the margin of Twin Lakes, altitude 750 feet, Salisbury (G. E. N., 1911). Determined by Warnstorff. This is one of those variable and intergrading forms which group themselves so closely about *D. subaduncus* (L.) Warnst. (= *D. aduncus* of most authors). Whether or not it has justifiable claim to specific rank seems open to question. Renauld,² Mönkemeyer,³ and Loeske,⁴ after a critical study of numerous specimens both in the field and in herbaria, are of the opinion that this and similar forms, such as *D. Kneiffii* and *D. gracilescens*, represent merely varieties of *D. subaduncus* which are due largely to seasonal changes and ecological factors. Dixon, Grout, and Brotherus support this same view. But on the other hand equally careful students, prominent among whom are Limpricht and Warnstorff, regard many of these forms as distinct species. In its typical form *D. pseudo-*

¹ Bull. Torr. Bot. Club 23: 89. 1896.

² Rev. Bryol. 33: 89–100. 1906; 34: 7–14. 1907.

³ Sitzungsber. d. Naturf. Gesellsch. zu Leipzig 1–25. 1906.

⁴ Zur Morphologie und Systematik der Laubmoose 24. 1910.

fluitans is more robust than any of the other species in the *subaduncus* group, but it bears a marked resemblance to *D. Kneiffii* and the two are very liable to be confused. In *D. pseudofluitans* the leaves often reach a length of 5 mm. and throughout the plant are pretty uniformly ovate-lanceolate in shape, tapering gradually toward the apex. In *D. Kneiffii* the leaves almost never exceed 4 mm. in length and are dimorphic; of the two types of leaves one resembles those of *D. pseudofluitans* in shape, but the other is broadly ovate and tapers rather abruptly. Both kinds of leaves are usually present in the same individual. Furthermore, in *D. pseudofluitans* the leaves near the tip of the shoot have a tendency, which is usually not evident in *D. Kneiffii*, to wrap themselves more or less loosely around the stem. The length of stem is also said to differ, but specimens of each species have been collected by the writer in which the stem measured fully a foot in length. On the whole, however, the distinctions which can be brought out in a description are rather unsatisfactory for, as Loeske remarks,¹ the two forms are more readily separated by their general habit than through any anatomical differences. *D. pseudofluitans* sometimes grows in ditches or in shallow depressions which are dry during the summer, but in such habitats it is poorly developed. It thrives most luxuriantly in places where it is almost completely submerged throughout the year. In a locality of this sort along the lake-ward margin of a swamp which borders one of the Twin Lakes there are pure mats of *D. pseudofluitans* many square yards in extent. The range of this species has not been definitely established, but for the present it may be assumed that its distribution coincides approximately with that of *D. subaduncus*. So far as the writer is aware no other New England stations have been published.

In passing it is worthy of note that this moss, together with *D. Sendtneri* var. *Wilsoni*², which occurs in the same locality, may be of considerable importance locally in connection with the production of marl. Davis has shown³ that the extensive marl accumulations, which are a well known feature of lakes in limestone regions, are largely the result of plant activity, and he has cited a number of algae and seed plants which play an important rôle in this connection. In

¹ Moosflora des Harzes 308. 1903.

² *D. Wilsoni* Schimp. is often treated as a separate species, but by Warnstorff it is regarded merely as a variety of *D. Sendtneri*.

³ Geol. Surv. Mich. 8³: 65-100. 1903.

the present case the leaves and stems of the two mosses referred to above were covered with a thin, loose crust of calcium carbonate which they had apparently precipitated from the water, and which gave them an unnatural grayish-white appearance.

DREPANOCLADUS VERNICOSUS (Lindb.) Warnst. In a boggy swamp at the margin of Twin Lakes, altitude 750 feet, Salisbury (G. E. N., 1911). Determined by Warnstorff. With the exception of *D. scorpioides* this is the only one of the *Drepanocladus* in which the stem lacks a central strand. It also differs from all the other *Drepanocladus* thus far recorded from Connecticut in the total absence of specially differentiated alar cells. On the whole *D. vernicosum* is a northern moss and has been rather infrequently collected in the United States, the only stations in the East that have come to the writer's attention being in Ohio, western New York, eastern Pennsylvania, northern New Jersey, and northwestern Vermont. It is found in both Europe and Asia.

According to the majority of the European authorities this moss is confined to swamps and bogs that are free from lime; so that on first thought it would hardly be looked for in the Twin Lakes swamp which overlies marl deposits of considerable depth. So far as the writer has observed, however, it does not occur around the lakeward border of the swamp but grows at a distance from the open water, in places where a considerable thickness of peat has been laid down. And this seemingly restricted distribution suggests a possible explanation for the anomaly. As has been pointed out by Transeau¹ humic acid, which is particularly abundant in peaty soils, forms insoluble compounds with alkaline earths. So that where there is an appreciable depth of peat the vegetation growing at the surface may be affected little or not at all by the calcareous nature of the substratum, owing to the fact that whatever lime may be dissolved in the water will be precipitated through the action of the humic acid before it has penetrated far into the peat.

CLIMACIUM DENDROIDES (L.) Web. & Mohr. On moist banks in a ravine, altitude 1600 feet, Salisbury (G. E. N., 1911). Determination verified by Dr. Grout. The seeming rarity of this moss in most parts of the East may in all probability be accounted for by the fact that it is usually mistaken for the better known species, *C. americanum*, which it closely resembles in habit and general appearance.

But the branch leaves and capsules in the two plants are quite distinct. In *C. americanum* the leaf bases have broad, crisplate auricles, and a large proportion of the leaves are acute. In *C. dendroides* the leaves may be slightly auriculate but the auricles are usually flat, while the majority of the leaves are very obtuse. The areolation also differs, the median cells in the former being from five to seven, in the latter from seven to ten times as long as broad. The capsules of *C. dendroides* ripen in late autumn and are much smaller than those of *C. americanum*. It probably occurs throughout northern North America and has been accredited to Maine, New Hampshire, and Vermont. Also common to Europe and Asia.

In addition to the mosses listed above there are a number of new stations for species which have heretofore been known from but one or two localities. These are as follows: *Fissidens bryoides* forma *inconstans* Schimp., Farmington (Miss Lorenz); *Encalypta ciliata*, Salisbury (A. W. Evans); *Schwetschkeopsis denticulata*, Colebrook (G. E. N.); *Myurella julacea*, Salisbury (Miss Lorenz); *Thuidium abietinum*, Canaan (G. E. N.); *Brachythecium acuminatum* and *Amblystegium vacillans*, Salisbury (G. E. N.). *Anacamptodon splachnoides* may also be recorded from two more towns, Colebrook and North Branford (G. E. N.). At the present writing 309 species of mosses are known to occur within the limits of the state. Three species have been dropped from the list and thirty have been added during the last four years. During the same time the number of hepatics has been increased from 107 to 128, thus making a total at this time of 437 bryophytes in Connecticut.

In conclusion attention is called to a number of errors which have been noted in the Bryophytes of Connecticut. P. 101, *Dicranum fulrum* Hook. should read *D. montanum* Hedw.; synonym should be omitted¹; p. 109, in the key to species of *Tortula* the characters should be interchanged to read as follows: *T. montana*—midrib excurrent into a long *toothed* hair-point; *T. muralis*—midrib excurrent into a long *smooth* hair-point. P. 111, in the key to species of *Grimmia* the characters of the leaf-cells in *G. conferta* and *G. apocarpa* have been exactly transposed. Also, the Stafford station for *Polytrichum alpinum*, reported in the last series of Notes², must be omitted; the mistake was due to a confusion of labels.

YALE UNIVERSITY.

¹ Already noted by Howe: *Torreya* 9: 37. 1909.

² RHODORA 13: 46. 1911.

MORELS IN OCTOBER IN MASSACHUSETTS.

JULIA WINGATE SHERMAN.

PRIZING mushrooms for their esculent qualities and having the mushroom hunger upon me, I went out the first of October to gather some *Tricholoma personatum*.

After having filled a large paper bag with that species and about a quart of *Marasmius oreades*—which has been conspicuously abundant the past season—I started for home well satisfied with my luck, looking forward to the enjoyment of these delicacies. As I was passing some recently turned soil where a granolithic sidewalk had been made, my attention was arrested by some morels growing at my feet. I picked about a dozen of varying size and shape.

When I reached home I attempted to look them up. I could find no records of morels being found in the autumn, nor could I find any description of a species which agreed perfectly with the specimens found. I put the morels in a white enamel plate to dry near the gas range. They gave off spores freely. These were of a rich pinkish yellow, apricot, I think it would be called.

At short intervals during the month I visited the locality where the morels grew. I found in all about seventy-five. The last were picked October 28th. Although I looked for them several times later none were found.

While I was inclined to think they were a form of *Morchella conica*, I could not completely identify them with that species owing to their manner of growth and to other peculiarities, for only the smaller ones were conical. As they increased in size the growth became lateral in cap and stem. About fifty per cent had an opening in the apex about a quarter of an inch in diameter.

They varied in size from the smaller conical ones, about the size of a lady's little finger, to the large broad ones, about twice the size of a hen's egg. The color of the pits, in fresh specimens, was smoky and dark; in some nearly elephant gray. The edges of the ridges between the pits were white or creamy, forming a beautiful contrast of color. The stem was larger at the base than at the top, which was wrinkled and brownish and rather squamulose or scurfy. Inside the morel was creamy white.

The location of these morels was peculiar. Many were growing on or near rocks. Only the small amount of clayey subsoil, which had adhered to the rocks, on their being thrown aside, made their growth possible. One large specimen was growing from the side of a square paving stone of granite. This clayey subsoil had been thrown under an elm tree by workmen who had recently completed the sidewalk mentioned. All the morels were found in a space of about fifteen square feet.

Specimens which I sent to Dr. Charles H. Peck of Albany, New York, for examination proved to be the first living morels he had ever seen in October. He found the spores from dried specimens to agree well with those of *M. conica*, although a few ran up to $32 \times 20 \mu$ in size.

The specimens ran smaller than typical *M. conica* and the scurf on the stem was darker colored. The color of the hymenium and the whitening of the edges of the ridges, the lateral growth and the tendency of all the larger ones to depart from the conical form, and the opening of the apex have led Dr. Peck to consider this plant a distinct variety, of which a description may be looked for in his next report. Hereafter, then, it will do no harm to look for morels in the fall.

Dr. Peck writes: "I have not before known of a morel appearing in autumn, and it may be an interesting question whether this should be considered a belated early summer form, or an extraordinary precocious spring form or an autumnal form pure and simple. If it never appears except in autumn I think it should be deemed worthy of specific distinction instead of varietal. Further observations must settle this."

ROSLINDALE, MASSACHUSETTS.

[Specimens of this collection are in the herbarium of the Boston Mycological Club.]

SOLIDAGO CALCICOLA IN VERMONT.

GEORGE L. KIRK.

WHILE botanizing on Mount Killington in September, 1910, in company with Harold G. Rugg of Hanover, N. H., and D. Lewis Dutton of Brandon, Vt., I found growing in an open spot by the road-

side leading to the old hotel at about 3700 feet elevation a goldenrod which attracted my attention from some distance because, unlike the other large-headed species which was growing in abundance all about (*S. macrophylla*), its inflorescence consisted of close spike-like racemes and it grew in a clump of considerable size. It was so late in the season that the material obtained was poor and the plant could not be determined satisfactorily but when some better specimens from the same station were sent to Prof. M. L. Fernald in 1911 he pronounced the plant to be *Solidago calcicola* Fernald. This is a new goldenrod for Vermont and a considerable extension of the range of this plant, which has heretofore been found within the limits of the United States only in northern Maine, having been collected elsewhere only in Gaspé county, P. Q. The Vermont material was taken a quarter of a mile below the rocky cone of Killington peak.

In gathering data for a revision of the Vermont Flora published in 1900 by Brainerd, Jones and Eggleston the writer has received the past season the following records of plants collected that are new to this state: *Bromus altissimus* Pursh and *B. incanus* (Shear) Hitchc., in Pownal, R. W. Woodward; *Carex Bicknellii* Britton, in Leicester, Woodward; *Muhlenbergia foliosa* Trin. and *Leptoloma cognatum* (Schultes) Chase, in Townshend, L. A. Wheeler; *Elymus australis* Scrib. & Ball, in Jamaica, Wheeler; *Molinia caerulea* Moench and *Polygonum tomentosum* Schrank., in Rutland, Kirk; *Scirpus Smithii* Gray, var. *setosus* Fernald, in Brandon, Kirk; *Sisyrinchium mucronatum* Michx., in Hartland, J. G. Underwood; *Oenothera pratensis* (Small) Robinson, in Hartland, Miss Nancy Darling; *Mimulus Langsdorffii* Donn., in Reading, Whiting; *Epilobium palustre* L., in Franklin, Underwood; *Aster puniceus* L., var. *lucidus* Gray, in Brandon, Dutton.

RUTLAND, VERMONT.

TWO RARE JUNCI OF EASTERN MASSACHUSETTS.—In May, 1910, when the Committee on Local Flora published their records for the *Juncaceae* (RHODORA, xii. 95–99), only one station each was known in eastern Massachusetts for *Juncus brachycarpus* and *J. effusus*, var. *decipiens*—the former at Scituate, the latter at Ipswich. Since these plants are so extremely local, not only in Massachusetts but in all New England, it is worth recording that in the Charles W. Swan

herbarium at Yale University there is a specimen of *J. brachycarpus* collected by Dr. Swan in "West Boston," May 15, 1884, and a sheet of *J. effusus*, var. *decipiens* collected by Dr. Swan at East Gloucester.—M. L. FERNALD, Gray Herbarium.

LINUM CATHARTICUM IN MAINE.—As I was lately revising my specimens of the genus *Linum* in my herbarium, I was surprised and pleased to come across a sheet of four fruiting specimens of the European Fairy Flax, *Linum catharticum* L., from "The Basin," Vinalhaven, Maine, collected by Mr. William W. Dodge, September 1, 1894. This is the first record for New England, but the Fairy Flax has been found at three stations in British America. Prof. John Macoun has reported it (Cat. Can. Pl., i. 501, 1886) "on waste ground along the seashore at Pictou, N. S." and Prof. M. L. Fernald has discussed and recorded it (RHODORA, v. 119, 1903) from Sydney, Cape Breton, and also (RHODORA, xiii. 116, 1911) as growing along the railway at Birchy Cove on the western coast of Newfoundland. Vinalhaven is an island at the mouth of Penobscot Bay and is 300 miles in a straight line from Pictou, the nearest recorded station for the species. Doubtless the plant occurs at other stations along the coast.—WALTER DEANE, Cambridge, Massachusetts.

ASTRAGALUS CONTORTUPPLICATUS ON WOOL-WASTE.—In June, 1911, on the J. V. Fletcher farm in Westford, Massachusetts, where wool-waste is used as a fertilizer, I found growing with *Thlaspi arvense*, *Sisymbrium Sophia*, and *Dracocephalum thymiflorum* (see RHODORA, xiii. 212) one plant of a Milk Vetch, which with the help of the Gray Herbarium has been named as: "Astragalus contortuplicatus, a native of eastern Europe, Siberia and Northern India. No American record is found of this species."—EMILY F. FLETCHER, Westford, Massachusetts.

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